

AMSAT News Service Weekly Bulletins

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Relayed from AMSAT BBS NETWORK
N8EMR's Ham BBS, 614-895-2553

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SB SAT @ AMSAT \$ANS-158.01

PHASE 3D TELECONFERENCE SET

HR AMSAT NEWS SERVICE BULLETIN 158.01 FROM AMSAT HQ
SILVER SPRING, MD JUNE 6, 1992 BID:\$ANS-158.01
TO ALL RADIO AMATEURS BT

* PHASE 3D TELECONFERENCE PLANNED *

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The first National Teleconference Radio Net (NTRN) in two years will take place on Sunday evening, July 12, at 6 PM EDT (22:00 UTC). The topic will be "PHASE 3D: A HAM SATELLITE FOR EVERY RADIO AMATEUR." The two hour session will be moderated by Roy Neal (K6DUE), and will feature (among other guests) AMSAT-NA President Bill Tynan (W3X0) and AMSAT-NA Director of Development Joe Schroeder (W9JUV).

To reserve a port on the 200 line interactive teleconference bridge, a repeater owner or trustee must send a self addressed post card to the Phase 3D NTRN, Bill Pasternak (WA6ITF), 28197 Robin Avenue, Saugus, CA 91350. Please send post cards only and the accompanying letter of request MUST contain the following information:

- 1) Repeater Callsign
- 2) Location
- 3) Estimated number of users
- 4) Name, address and telephone number of licensee/trustee
- 5) operating frequency

Note: Ports on the Minneapolis based Teleconference Bridge will only be made available to repeaters and wide-area bulletin stations.

Also, those repeaters tied into Jim Bass "Let's Talk Radio Network" on GTE Spacenet 3 will be able to downlink the NTRN on a listen-only noninteractive basis.

AMSAT members are urged to encourage operators of repeaters in their areas to sign up to carry the teleconference as well as to spread the word about it among local hams and clubs.

[The AMSAT News Service (ANS) wishes to thank KB2BD and SpaceNews for this information.]

/EX

SB SAT @ AMSAT \$ANS-158.02

KB5MU DECODES 2ND DOVE MESSAGE

HR AMSAT NEWS SERVICE BULLETIN 158.02 FROM AMSAT HQ
SILVER SPRING, MD JUNE 6, 1992 BID:\$ANS-158.02
TO ALL RADIO AMATEURS BT

KB5MU Decodes Second DOVE Voice Message Using DSP

In last week's ANS-151.01 bulletin, it was stated that the original DOVE voice message, which said "You are listening to DOVE MICROSAT" had become garbled and unintelligible. However, DOVE Recovery Team member Paul Williamson (KB5MU) using a state-of-the-art Digital Signal Processing (DSP) device -- the human ear -- was able to decipher the speech sounds and found the message quite intriguing. According to KB5MU, the second message was "roll over, Beethoven." But in order to be absolutely sure, KB5MU recorded the message and played it backwards and listened again. What he heard astonished him even more! He concluded that the second DOVE message played backwards was a message from Elvis! He further concluded that the DOVE voice message had purposely been changed by Martians who were indeed Elvis fans. After serious consultation with another member of the DOVE Recovery Team, Jim White (WD0E), they both came to the conclusion that the message played backwards said "take me to your leader." WD0E stated he would be more than happy to comply with the space aliens request but he was not sure who his leader was. AMSAT News Service (ANS) Editor Dave Cowdin (WD0HHU) would like to solicit additional comments as to the interpretations of the second voice message transmitted by DOVE. The original theory that the first DOVE voice message had been changed through a simple software "bug" was apparently seized upon too easily by the ANS editors. Therefore the ANS would like to solicit additional comments on the second DOVE message, what it means and how it got changed. Communicate your ideas to WD0HHU on CompuServe at his address of 70524,2272 or to his INTERNET address of wd0hhu@amsat.org.

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SB SAT @ AMSAT \$ANS-158.03
A0-13 ATTITUDE PLANNING: PART I

HR AMSAT NEWS SERVICE BULLETIN 158.03 FROM AMSAT HQ
SILVER SPRING, MD JUNE 6, 1992 BID:\$ANS-158.03
TO ALL RADIO AMATEURS BT

G3RUH & VK5AGR Explain A0-13 Attitude Planning: Part I

Graham (VK5AGR) has often been asked why the attitude of A0-13 is continually being changed once every couple of months, so I thought it might be appropriate to include some printouts from a program by G3RUH called ILLPLAN, an abbreviation for "Illumination Planner."

The header of each chart gives the date, SEL (the elevation of the Sun above or below the orbital plane), SAZ (the azimuth of the Sun around the orbital plane), WP (the value for the Argument of Perigee on the date displayed - as per keplerian elements), RAAN (the value for the right ascension of the Ascending Node on the date displayed - as per keplerian elements) and IN (the satellite's orbital inclination).

The next line is labelled LA/LO and the values from 260 to 90 degrees are displayed and represent the attitude of the satellite in longitude. The column of numbers down the left represent the attitude of the satellite in latitude between the values of + and - 15 degrees.

The numbers in the center of each printout represent the Sun Angle in degrees for each combination of Attitude Longitude and Latitude. The percentage illumination of the solar panels = $100 * \cos(\text{Sun Angle})$ and A0-13 needs 70% or better solar panel illumination to maintain full transponder operations. In other words the Sun Angle must lie somewhere between + or - 45 degrees.

/EX

SB SAT @ AMSAT \$ANS-158.04
A0-13 ATTITUDE PLANNING: PART II

HR AMSAT NEWS SERVICE BULLETIN 158.04 FROM AMSAT HQ
SILVER SPRING, MD JUNE 6, 1992 BID:\$ANS-158.04
TO ALL RADIO AMATEURS BT

A0-13 Attitude Planning Explained by G3RUH & VK5AGR: PART II

The significance of the plus and minus signs and the blank areas is that for those values of attitude Latitude and Longitude the Sun angle is either less than -45 degrees or greater than +45 degrees; in other words, UNDESIRABLE.

I have chosen the dates of all the planned attitude changes for the remainder of 1992 to try and demonstrate why there is a need for the attitude changes.

1992 Jun 8 [Mon] SEL= -24.12 SAZ= 125.9 WP= 287.6 RAAN= 22.54 IN= 56.7

LA\LO	260	250	240	230	220	210	200	190	180	170	160	150	140	130	120	110	100	90
15	---	-37	-28	-19	-10	-1	8	16	24	32	39	44	+++	+++	+++	+++	43	37
10	-44	-35	-26	-17	-8	1	10	19	27	35	42	+++	+++	+++	+++	+++	+++	41
5	-42	-33	-24	-15	-6	3	12	21	30	38	+++	+++	+++			+++	+++	45
0	-39	-31	-22	-13	-4	<5>	14	23	<32>	41	+++	+++					+++	+++
-5	-37	-28	-20	-11	-2	7	17	26	35	43	+++			Sun here			+++	+++
-10	-34	-26	-17	-9	0	9	18	28	37	+++	+++			at 126/-24			+++	+++
-15	-31	-23	-15	-6	2	11	20	29	38	+++	+++						+++	+++

Looking at the printout for 8-Jun-92, if the attitude was to be left at Longitude 180 degrees and Latitude 0 degrees ("180/0"), which is the most desirable attitude for antenna pointing, you can see that the Sun Angle is 32 degrees which is very close to the undesirable area, whereas with an attitude of 210/0 the Sun angle is only 5 degrees, or 99.5% illumination.

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SB SAT @ AMSAT \$ANS-158.05

A0-13 ATTITUDE PLANNING: PART III

HR AMSAT NEWS SERVICE BULLETIN 158.05 FROM AMSAT HQ
SILVER SPRING, MD JUNE 6, 1992 BID:\$ANS-158.05
TO ALL RADIO AMATEURS BT

A0-13 Attitude Planning Explained by G3RUH & VK5AGR: PART II

If you compare this with the next printout for 92-Jul-20 you can see that the "undesirable" area is right in the center of the printout, which will necessitate moving the attitude to the other side of this area via an attitude of 180/15.

1992 Jul 20 [Mon] SEL= -34.22 SAZ= 175.7 WP= 291.1 RAAN= 14.79 IN= 56.7

LA\LO	260	250	240	230	220	210	200	190	180	170	160	150	140	130	120	110	100	90
15	-4	4	12	19	25	31	36	39	<41>	40	39	35	30	24	18	11	3	-5
10	-1	7	15	22	29	35	40	44	+++	45	43	40	34	28	21	14	6	-2
5	2	10	18	26	33	39	45	+++	+++	+++	+++	44	38	32	25	17	9	1
0	5	13	21	29	36	<43>	+++	+++	+++	+++	+++	<>	42	35	28	20	12	4
-5	7	16	24	32	40	+++	+++	+++			+++	+++	+++	39	31	23	15	6
-10	10	19	27	35	43	+++	+++		Sun here		+++	+++	42	34	26	17	9	
-15	13	21	29	38	+++	+++			at 176/-34		+++	45	37	28	20	12		

This means that while the reorientation is in progress, and even at 150/0 the Sun angle is still not anywhere optimum either for solar illumination or for antenna pointing. One option that was considered was to leave the attitude at 180/15 rather than continuing to 150/0 but from previous experience a latitude much greater than 5 degrees results in relatively poor

antenna pointing angles, which makes communication harder. So generally controllers maintain the latitude as close to 0 degrees as possible and just adjust the longitude.

1992 Sep 21 [Mon] SEL= -2.093 SAZ= 241.3 WP= 296.5 RAAN= 1.353 IN= 56.97

LA\L0	260	250	240	230	220	210	200	190	180	170	160	150	140	130	120	110	100	90
15						+++	+++	36	27	17	8	-2	-11	-21	-31	-40	---	---
10						+++	+++	38	28	18	8	-2	-12	-21	-31	-41	---	---
5			Sun here			+++	+++	38	28	18	8	-1	-11	-21	-31	-41	---	---
0			at 241/-2			+++	+++	39	<29>	19	9	<-1>	-11	-21	-31	-41	---	---
-5						+++	+++	39	29	19	9	-1	-11	-21	-31	-41	---	---
-10						+++	+++	38	29	19	9	-1	-11	-21	-30	-40	---	---
-15						+++	+++	38	28	19	9	-1	-10	-20	-29	-39	---	---

By 21-Sep-92 controllers can once again afford to change the attitude back to the more desirable attitude (for the antennas) of 180/0 with a Sun Angle of 29 degrees. Also you can see that the undesirable area has drifted further to the left of the printout as the Sun moves around its own orbit.

1992 Nov 23 [Mon] SEL= 33.06 SAZ= 304.9 WP= 301.8 RAAN= 349.6 IN= 56.97

LA\L0	260	250	240	230	220	210	200	190	180	170	160	150	140	130	120	110	100	90
15	+++	37	29	21	12	4	-4	-12	-19	-25	-31	-36	-40	-42	-42	-40	-36	-32
10	43	35	26	18	10	1	-7	-15	-22	-29	-35	-41	-45	---	---	-45	-41	-36
5	40	32	24	15	7	-1	-10	-18	-25	-33	-39	-45	---	---	---	---	-45	-40
0	36	29	21	13	4	<-4>	-12	-21	<-29>	-36	-43	---	---	---	---	---	---	-43
-5	33	26	18	10	2	-7	-15	-24	-32	-40	---	---	---	---	---	---	---	---
-10	29	22	15	7	-1	-10	-18	-26	-35	-43	---	---	---	---	---	---	---	---
-15	26	19	12	4	-4	-12	-20	-29	-37	-45	---	---	---	---	---	---	---	---

In the last printout which is for 23-Nov-92 the undesirable area is creeping in from the right, and will continue to drift from right to left. If the attitude was left unchanged at 180/0 the Sun Angle would soon be less than -45 degrees. So a move to 210/0 is planned for that date to restore the Sun Angle to -4 degrees.

I hope that the above tables and explanation has helped you understand why A0-13 Command Stations have continually to compromise antenna pointing to meet solar panel illumination requirements.

73 de Graham VK5AGR (92May31) and James G3RUH (92Jun06)

/EX

SB SAT @ AMSAT \$ANS-158.06

A0-13 OPERATIONS NET SCHEDULE

HR AMSAT NEWS SERVICE BULLETIN 158.06 FROM AMSAT HQ
SILVER SPRING, MD JUNE 6, 1992 BID:\$ANS-158.06
TO ALL RADIO AMATEURS BT

AMSAT-NA Operations Net Schedule

AMSAT Operations Nets are planned for the following times. Mode B nets are conducted on A0-13 on a downlink frequency of 145.950 MHz and Mode J/L on a downlink of 435.970 MHz.

Date	UTC	Mode	Phs	NCS	Alt
20-Jun-92	2000	B	146	WA5ZIB	WJ9F
5-Jul-92	0200	B	118	W90DI	N7NQM

11-Jul-92 2300 B 225 W5IU WA5ZIB

Guest commentators are planned. Join the net if you have questions.
In the unlikely event that either the NCS or the alternate do not
call on frequency, any participant is invited to act as net control.

Slow Scan Television on A0-13

Starting Sunday, 14 June 1992 the SSTV net will meet on a downlink
frequency of 145.925 MHz, Mode B at MA 165, UTC Sundays. Also try Mode J,
UTC Saturdays at MA 165, frequency of 435.980 MHz. Try the various AMSAT
Nets for scheduling at other times.

/EX

SB SAT @ AMSAT \$ANS-158.07
SPRING AND SUMMER A0-13 TRANSPONDER SCHED

HR AMSAT NEWS SERVICE BULLETIN 158.07 FROM AMSAT HQ
SILVER SPRING, MD JUNE 6, 1992 BID:\$ANS-158.07
TO ALL RADIO AMATEURS BT

A0-13 Early Summer Schedule Announced

The early summer schedule for A0-13 is as follows:

N QST 1992 May 08 A0-13 Transponder Schedule Jun 10 - Jul 20
Mode-B : MA 000 to MA 165 ! Mode-JL on Mon, Wed !
Mode-JL : MA 165 to MA 200 ! Fri and Sat UTC only. ! Alon/Alat
Mode-LS : MA 200 to MA 215 ! S Beacon on "L" days ! 210/0
Mode-B : MA 215 to MA 256 ! S Transp on "B" days +-----/
Omnis : MA 250 to MA 060 ! Mode L OFF after Jun 23 until
Aug 17. Next attitude change Jul 20, to 150/0 until Sep 21.
73 de Peter DB20S, James G3RUH and Graham VK5AGR.

L QST de G3RUX. 92May08. A0-13 Calendar for remainder of year:
Date Event Modes Sun Angle SEL/SAZ

Date	Event	Modes	Sun Angle	SEL/SAZ
1992 Jun 08 [Mon]	Move to 210/0	B JL S	5	-24/126
1992 Jun 29 [Mon]	L OFF	B -- -	24	-33/149
1992 Jul 20 [Mon]	Move to 150/0	B -- -	43 to 47	-74/176
1992 Aug 17 [Mon]	L ON	B JL S	28	-26/208
1992 Sep 21 [Mon]	Move to 180/0	B JL S	-1 to 29	-2/241
1992 Nov 23 [Mon]	Move to 210/0	B JL S	-29 to -4	33/305
1992 Dec 14 [Mon]	L OFF	B -- -	-27	33/333
1992 Dec 28 [Mon]	t.b.a.		43	29/351

SEL/SAZ is Sun's position in orbit plane (like ALAT/ALON). Move
Jul 20 to 150/0 because Sun is at SAZ=176 i.e. apogee direction
and thereafter around SAZ=208 - 240. Interesting! 73 James

A0-10 is currently available for Mode B operation when it is view of your
QTH. PLEASE DO NOT attempt to use A0-10 if you hear the beacon or the
transponder signals FMing.

/EX

SB SAT @ AMSAT \$ANS-158.08
FO-20 MODE JA TRANSPONDER SCHED

HR AMSAT NEWS SERVICE BULLETIN 158.08 FROM AMSAT HQ
SILVER SPRING, MD JUNE 6, 1992 BID:\$ANS-158.08
TO ALL RADIO AMATEURS BT

F0-20 Transponder Operating Schedule

F0-20 normally operates its Mode JD packet radio transponder on all orbits. During the following periods, the Mode JD transponder will be switched off and the analog Mode JA transponder will be switched on:

10-Jun-92 02:50 UTC -to- 11-Jun-92 03:11 UTC
17-Jun-92 03:15 UTC -to- 18-Jun-92 01:15 UTC
24-Jun-92 01:50 UTC -to- 25-Jun-92 02:10 UTC

[The AMSAT NEWS Service would like to thank JJ1WTK and Space News Editor KD2BD.]

/EX

SB SAT @ AMSAT \$ANS-158.09
FROM A0-13 TLM BEACON

HR AMSAT NEWS SERVICE BULLETIN 158.09 FROM AMSAT HQ
SILVER SPRING, MD JUNE 6, 1992 BID:\$ANS-158.09
TO ALL RADIO AMATEURS BT

WB6LL0 Copies This From G3RUH To DB20S & VK5AGR Off A0-13 Telemetry Beacon

Attitude Change 180/0 -> 210/0.

I have done the preparation for this. The change is complicated by

- (1) 25 minute eclipses from MA 246-000.
This robs us of 50% of the magnetorquing capability, so that the maneuver takes 10 perigees rather than 5, and this will take an elapsed time of about a week.
- (2) Alternate day Mode-L is a nuisance, given that Mode-B commanding is very difficult these days due to suspected radar interference.
- (3) Sun's elevation is only 25 degrees, giving poor attitude estimation in spacecraft attitude latitude.
- (4) Sun's azimuth is 127 degrees and when the attitude is close to 210/0, ESWATCH Earth sensor trigger timing that gives us att. longitude, will only work for the antenna sensor; the lower sensor sees the terminator.

I will start the process on Jun 05 [Fri], orbit 3045 for 5 perigees. This should get us to Alon/Alat 196/-4, 30 rpm and a Sun angle of 20 degrees. On Jun 08 [Mon] Orbit 3051 during Mode-L, I will attempt an interim attitude estimation. I will then invoke Mode-JL every orbit for 2 days MA 140-175 until Jun 10 [Wed]. On the same orbit I'll invoke another magnetorquing session for 4 perigees. This should get us within 10 degrees of the target by Wednesday. On Jun 10 [Wed] orbit 3056/150 on mode-L I will try an attitude estimate again, and prepare a final magnetorquing and spin-up to 45 rpm. (It will have fallen to 15 rpm). The published 210/0 schedule will also be invoked. Keep your fingers crossed! 73 James.

<<Thanks to Dave WB6LL0 for relaying this bulletin>>

/EX

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